

## AGRIBUSINESS AND CONTRACT FARMING: THE CASE OF SMALL-SCALE CUCUMBER PRODUCERS IN MEXICO

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### I. INTRODUCTION

During the 1980s, Mexico moved from a model of self-sufficiency in food to one based on comparative advantage. It is underpinned by an agricultural policy whose principal measures have been the withdrawal of the state from the production, marketing, finance and sector services; commercial liberalization, above all as a result of the incorporation of Mexico into GATT in 1986; and legal land rights reform. Commercial liberalization was promoted with the explicit aims of reducing the elevated indices of internal inflation, and promoting the competitiveness of the national industry. Within this economic paradigm, it is considered an adequate policy to increase the production and exportation of goods in which the country is competitive, such as vegetable crops, fruits, and flowers, and to create disincentives to the production of those that, like grains, may be acquired more cheaply in the international market. As a result, Mexico has gone from being self-sufficient in such agricultural goods, to being deficient in them. It now has to cover, via external purchases, 40 per cent of its internal consumption of basic grains (Preibisch, Rivera and Wiggins 2002; De Itta 2007; Appendini 2008; Rello 2008).

In contrast to developments in the agricultural sector as a whole, Mexican fresh vegetable export have expanded and currently maintains a positive commercial balance. That expansion has been based not so much on an official assistance policy, but rather on the initiative of the exporting business owners, who, by taking advantage of the vegetable crop deficit in the United States during the winter months, and the climatic and labor cost advantages found in Mexico, have achieved important advances in technology, organization, and access to external financing. One of the strategies increasingly used by those agribusinesses in order to ensure a supply of products with specific characteristics and with reduced costs and

risks, has been the establishment of contractual relationships with producers, among whom contract farming is prominent. This may be defined as verbal or written agreements made between direct producers and diverse agents (wholesalers, processors, retailers, packers, producer organizations and public-sector enterprises). A given agricultural product may, therefore, be regulated through these diverse aspects of the production and marketing (Roy 1972:3).

Despite the great variety of agreements or contracts existing between producers and buyers, it is common for the former to provide land and labor, while the latter supply seeds, chemical supplies, and/or technical advice on credit (Raynolds 2002:784; Echánove and Steffen 2005). Product prices are not always established up front in the contracts, however, what is inherent in contract farming is that buyers directly or indirectly control agricultural production processes (Watts 1994:26-28; Raynolds 2000:441), which differentiates it from other types of contractual relationships, such as sharecropping and purchase-sale agreements. Contract farming has expanded in recent decades, as has been described by several authors (Masakure and Henson 2005; Saenz and Ruben 2004; Little and Watts 1994; Raynolds 2000, 2002; Dolan and Humphrey 2000). In Mexico, that regimen prevails in the production of tobacco, grain seed, barley, yellow corn, sorghum, wheat, and fruit and vegetable crops for export. It also preponderates with respect to chicken and pig fattening. Unfortunately, there are few studies on the subject that refer to the cases of grains and tobacco, so taking into account what happens in the field of vegetables is extremely important. In particular, the case study presented here concerning pickling cucumbers is representative of the exports of non-traditional products that have increased greatly in recent years. It is also particularly interesting because the product is cultivated on family farms or similar small producers and since it is a labor-intensive crop with significance regarding employment.

This paper seeks to contribute to our knowledge about the relationships that are established between the parties to such contracts (agribusiness and farmers), and the socio-economic effects of contract farming on producers. As contract farming represents an institution that links local and global processes, we will conduct a place-based analysis, as used by authors such as Bebbington (2003), who emphasizes the need to relate existing local level processes with decisions taken at completely different levels and which largely define what will happen locally. These considerations are fundamental for the study of contract farming as it represents labour relations that are of particular importance for the integration of producers into national and world markets. We choose the

State of Guanajuato in central Mexico as a local case study of contract farming, since it is the second largest vegetable producer in the country. Between 2005 and 2006, we have carried out in-depth interviews with 35 contracted producers and a wide range of representatives from the vegetable processing firms throughout the state, including general managers, agronomists, field supervisors and marketing managers. The research process also benefited from the opportunities that arose from participant observation.

## II. VEGETABLE CROPS AND PICKLING CUCUMBERS IN MEXICO

Mexico is an important producer, and the world's third largest exporter of fresh vegetable crops. Although the country only exports a quarter of its total horticultural product (by volume), shipments abroad generate 70 per cent of the revenue achieved by the agricultural sector. Cucumbers (fresh and chilled) occupy third place among exported vegetable crops; their destination being the US market, where increasing volumes were shipped between 2000 and 2005. Similarly for vegetable crops in general, Mexico is the principal supplier of cucumbers to the United States (80 per cent of this country's foreign cucumber purchases in 2005). Its participation in this market has declined from 90 per cent in 2000, owing to the increased supply of non-processed cucumbers to the US by Canada and Honduras.

The cucumbers are of two different varieties, depending on their intended use: those for slicing, which are sold fresh for immediate consumption, and those for pickling, which are small cucumbers that are primarily grown for processing (preserved in vinegar or acetic acid and called pickles). Unfortunately, the aforementioned figures do not permit one to distinguish the specific importance of pickling cucumbers (PC), since they encompass the totals for both cucumber varieties. The majority of Mexican cucumber exports are in fresh produce form, part of which is processed on the other side of the border. Nevertheless, increasing shipments of processed produce also exist; totals that have tripled in the last four years (in 2005 they reached 9,387 tons, positioning Mexico as the third largest supplier) (USDA 2007). The principal supplier is India (40 per cent of US purchases) whose growing shipments have pushed Canada into second place.

The United States is an important producer and consumer of PC, the majority ends up in hamburgers prepared in the fast food chains, and on the shelves of supermarkets, accounting for the third leading shelf staple (packed in cans/jars) vegetable in terms of consumption. However, there are product shortages during the winter (when Florida is the only producing

state) and some months of spring. Such shortages particularly include small cucumbers that are less than an inch in diameter and, as such, require labor intensive cultivation and manual harvesting. It is here that countries like India and Mexico enjoy a comparative advantage, given the lower agricultural wages paid.

The production of PC in Mexico is concentrated in the states of Sinaloa, Michoacan and Guanajuato. In 2006, around 700 hectares were cultivated in Guanajuato. Of these, about 600 hectares were located in the municipality of Valle de Santiago, situated in the southern part of the state, within the region named El Bajío. The cultivation of PC is short-cycle (3.5 months), and only one cycle per year is established, as this crop is very vulnerable to the rains that characterize the Valle's summers, and the low temperatures present during the winter. It is defined as a "familiar" or "artisan" crop, given the large amount of manual labor (320 labor-days per hectare) and continuous supervision it requires at the various stages of cultivation, especially at harvest time. Owing to this, production is taken on by producers on smallholdings who cultivate up to five hectares and rely on the labor of family members, and who, in their majority, are members of the *ejidos*<sup>1</sup> of Rincon de Parangueo, San Nicolas, San Isidro, Presa de San Andres and San Francisco Chihuindo. There have been cases where large farmers cultivated pickling cucumbers, however, they failed due to the difficulty in finding the necessary labor; an increasingly scarce resource in Valle, because of the massive emigration of the youth to the United States.

PC requires rapid post-harvest handling. They must be transported directly from the lots to the firms' collection centers, so their quality is not affected. In these installations, the produce is weighed, selected, bagged in plastic sacks and transported in refrigerated trucks to the United States.

Water for irrigation is obtained from drilling deep wells. This has made the production of vegetable crops in Valle possible, since there is now no other way of obtaining such a resource. In the Rincon de Parangueo *ejido*, for example, where producers of these crops predominate, the wells began to appear around the middle 1970s. However, it was not until the 1980s that the majority of wells were drilled. In addition to water, however, the producers require both a market and finances to support cultivation. In the 1980s, the Campbell's firm established itself in the area and thus provided access to both. This company, with more than twenty years of operation in Mexico in the canned foods sector, diversified its activities toward frozen vegetables (broccoli and cauliflower) and the exportation of pickling cucumbers in their fresh state. This crop was shipped to the United States, to the Vlastic Company, which was then the principal pickle maker in that country, and with whom Campbell's had a certain association. In

order to ensure supply and a certain quality, Campbell's entered into contracts with the Valle producers, showing them how to cultivate the new produce, thus unleashing a process of productive reconversion, under which numerous lands, previously dedicated to grains, were sown with vegetable crops. The continuing drop in the profitability of staple grains production contributed to this switch; being a product of the suppression of state assistance and subsidies, and the commercial liberalization that began in the 1980's.

Nevertheless, Campbell's confronted problems in the market and suspended its activities in Valle. Other firms then entered the pickling cucumber business; in 1994, *MarBran* and *Laja Organicos SA de CV* began activities. In 1999, *Servicios Agropecuarios El Sol*, dedicated to the export of cucumbers and fruit from diverse areas of the country, arrived in Valle.

The *MarBran* story goes back to 1980, when that company began to export vegetable crops from Guanajuato, and today it is the principal firm in that area of interest, not only in the country, but world-wide. In 1992, it entered into association with the American food consortium *J. R. Simplot*, and soon after began to diversify its activities by adding the export of fresh vegetable crops (broccoli, snow pea, and PC) to the United States. According to the company's directors, the fact of having a presence in the fresh as well as the frozen market permits them increased scope to maneuver, since they can transfer product from one to another. They consider it inconvenient to export only fresh crops, since those crops frequently result in higher profit margins, despite the fact that their market is less stable than the frozen produce (personal interview).

The PC *MarBran* exports from the south of Guanajuato are produced on about 250 hectares, of which 190 are situated in the municipality of Valle and are cultivated by 100 smallholding producers. Prior to the sowing period, the firm enters into written contracts, covering one productive cycle, with each of the producers specifying the quantities of produce to be delivered, the qualities demanded and the prices relevant to each quality. The producers are provided with seed and chemical supplies (fertilizers and insecticides) on credit, with the cost of these being gradually deducted from the first delivery of produce made to the firm onwards. Although this firm points out that the producers are given free technical assistance, some of them claim never to have received any, explaining that the firm does not have sufficient personnel to carry out such an undertaking.

The other buying firm, American-owned *Servicios Agropecuarios El Sol*, is also supplied by means of written contracts that specify quantities, qualities and prices of produce. The suppliers comprise 60 small-scale producers who cultivate a total of 250 hectares annually. Similar to

*MarBran*, *El Sol* provides the producers with seed and chemical supplies on credit; however, they differentiate themselves by additionally furnishing the growers with superior technical advice. In providing those chemical supplies, *El Sol*'s technical personnel periodically visit the producer's lots, review the crops and issue a document that specifies the chemicals and the quantities required. The producer then goes to collect them, either at the firm's warehouses or at certain private stores with which the firm has previously reached agreements. During these visits, the agronomists also advise the producers as to the state of the crops (application of irrigation, etc.); this representing a facet of corporate control over the productive process.

With *El Sol*, the producers have access to yet another source of assistance not available from *MarBran*, which consists in the loan of a certain amount of money, for each hectare under cultivation for the firm. The loan is for sowing expenses, in addition to an amount given when the harvest begins, for the initial payment of the labor required for this activity.

*Laja Organicos*, also owned by a US citizen, organizes its relationships with the producers in a similar way to that of *El Sol*, annually contracting around seventy that cultivate 160 hectares. Its client is Bay Valley Foods, principal maker and distributor of a series of processed foods for supermarkets, restaurants, and fast food chains in the United States. The pickling cucumbers of the other two firms operating out of Valle have the same final destination.

### III. VEGETABLE CONTRACT FARMING AS SEEN BY PRODUCERS

According to Singh (2002:1632), the satisfaction of the contract producers may be measured by means of the profitability of their crops, the efficiency of payments and administration of chemical supplies, the security of the market and their own level of participation in decision-making. To these elements, we here add the technical advice afforded them by the firms and the evaluations of produce quality, which have a direct influence on profitability levels. With respect to chemical supplies, the pickling cucumber producers interviewed pointed out that they are priced higher than similar products found in commercial stores, while the seeds they are given are not always of good quality. They often result in lesser yields and lower quality of the final product. The technical advice provided by *MarBran* is considered to yield no benefit for the contract producers while on the contrary, the advice given by *El Sol* and *Laja* is regarded to be very useful.

Product quality is usually the strongest contending issue in the relationship between contract producers and firms. In the case of pickling

cucumbers, the main problem facing *MarBran* suppliers is the fact that the produce reception mechanism is deficient. That firm's storage center opens at noon, but are plagued with long lines of vehicles of producers, formed well in advance and compounded by late arrivals waiting to deliver their produce. Consequently, truck loads of produce wait in the sun for hours. Dehydration in these conditions diminishes product quality. Once the load is received, it is graded for quality (manually and mechanically) in the presence of the producer. The producers receive payment for their deliveries at the end of each week, minus a percentage of the amount of credit previously received. This process is repeated for each delivery until the debt is paid off in full.

In the case of *El Sol*, the producers point out that the quality evaluations are inequitable. A manual selection process is used, and sometimes rejects produce that producers consider satisfactory. Nevertheless, farmers are reluctant to shift to another firm for fear of losing access to loans (personal interviews).

According to international norms, there exist three qualities of pickling cucumber (first, second and third). Classification is based on the cucumber's diameter, the narrowest (up to  $1^{1/16}$  inches in diameter) being ranked first quality and priced highest. In Valle, in some years, firms also bought pickling cucumbers of inferior quality or larger size. However in 2006, only the smallest examples were accepted. In order to comply with this demand, depending on the climate, the producers must harvest their lots frequently, sometimes on a daily basis. The latter is due to the fact that pickling cucumber may grow over the course of twenty-four hours, and thus face the subsequent risk of rejection by the firm. In the case that the cucumber is rejected for being over-sized, it is sold on the national market at insignificant prices.

The risks inherent in production, such as the weather and plagues, are assumed entirely by the producers. This situation is exacerbated by the fact that the pickling cucumber crop is not insured. In the event of adversity, growers find themselves indebted to the firm and are obligated to pay off those debts by means of the delivery of produce in subsequent productive cycles. Those producers who also sow broccoli for *MarBran* find that any debts incurred from their pickling cucumber activities are charged against deliveries of the other crop (personal interviews).

The producers' profits for cultivating pickling cucumbers have diminished in recent years, owing to the greater production costs vis-à-vis the selling price, and the stagnation in per-hectare yields. Although these costs depend both on the state of the crops and the yield, in 2006, they averaged US \$3,585 per hectare. If there are infestations the expenses

involving the use of insecticide further increases the production cost. Those *ejidatarios* cultivating more than five hectares of pickling cucumber, an area exceeding their legal land entitlement, must rent this resource. In such a case, for each extra hectare added to production the cost for one productive cycle of three months including water would be increased by US \$380.

However, as the farmers pointed out, the most important expense is labor, since it comprises an average of 320 man-days per hectare, representing 60 per cent of the total production cost. The most intensive labor activity is associated with the harvest, during which each producer employs at least 15 farm-workers daily per hectare, making an average of twenty cuttings during the month and a half long harvest period. This is a very meticulous task, in which only the uniform pickling cucumbers, of certain size and degree of maturity, must be selected. Generally, the producer and/or some family member supervise this work, while other family members work alongside the hired workers. In the 2006 season, the daily labor rate was US \$9.50, compared with \$4.50 paid in 2001. Added to this, the aforementioned emigration of the youth has drastically decreased the availability of manpower, which has obliged the producers to seek workers in towns farther afield (including in the neighboring state of Michoacan).

Other areas of expense that have increased in price are the chemical supplies (fertilizers and insecticides), which, between 2001 and 2006, rose 40 per cent, and the electricity supply tariff for the extraction of well-water, which increased 2.5 times in the same lapse of time (CFE 2006). However, the prices offered by the firms buying the pickling cucumbers have not kept pace with increasing costs. During 2004 and 2005, for example, the price of 1A quality produce remained stable (US \$0.68 per kilo), and, in 2006, rose only US \$0.71. Moreover, this year, the producers' bonuses or other incentives for quality were curtailed, due, according to the manager of one firm, to the unfavorable market situation (personal interview).

The average crop yield among smallholding producers is ten tons of cucumber per hectare, of which 60-70 per cent is of first quality. Although profits per unit of land surface vary depending on yield and crop quality, on the average, they are of the order of US \$950 per hectare annually. The three hectares cultivated by the majority of *ejidatarios* provide them, therefore, with an income of US \$238 per month, which, although much more than the legal minimum wage, is insufficient for the maintenance of the typical family of 6-8 members involved in the business.

With respect to the producers interviewed, the evidence is that there are advantages to be gained from contract pickling cucumber cultivation.

One of these is the ability to count on a more secure market, compared with the possible alternatives (vegetable crops for the national market or grains), where there exists greater uncertainty as far as prices are concerned, and many fraudulent practices on the part of the buyers. The producers point out that although their relationship with the firms is not all roses, and the price of pickling cucumbers has not increased as it should, at least they receive secure payments. Another advantage is the access to credit, which enables them to begin cultivating expensive crops, as vegetable crops, and pickling cucumbers. As we saw, labor, the most costly expense in relation to this crop, is paid for by the producers out of the weekly disbursements made by the buyers in return for the delivered produce.

On the other hand, with pickling cucumbers, the producers obtain almost double the profits per unit of land surface compared with grains. Furthermore, the latter has a longer productive cycle (six months), during which period two cycles of vegetable crops could be grown. In fact, the vast majority of cucumber producers, who are unable to subsist exclusively on this crop, also produce fresh broccoli for export under contract for the firms located in the municipality. They grow pickling cucumbers during the off-season (February-May), when broccoli cultivation is officially prohibited, establishing a total of three cycles of crops per year: cucumber-broccoli-broccoli. Some producers, generally those having between five and ten hectares under cultivation, also set aside small areas for other vegetable crops (pea, zucchini squash, cauliflower). Concurrently, the majority of small-scale producers cultivate grains for their own consumption (corn and beans), or for livestock feed (pig fattening).

Even so, the majority of the *ejidatarios* will have only managed modest improvements in their quality of life as a result of their agricultural activities. Only a very limited number would have purchased machinery and animals for work. In order to subsist, small-scale growers have had to diversify their income (a large part of which do not now originate from agricultural activity, in keeping with a nationwide trend). Anyone who has had the means has opened a grocery store in his town, and the young people who have not emigrated seek employment in the clothing assembly plants or agribusinesses in the region. Nevertheless, the principal source of non-farm income is remittances from family members who reside in the United States. Such a custom is so widespread that it is difficult to find a family living in Valle that does not have at least one member working on the other side of the country's northern border. This situation is not peculiar to this municipality, but forms part of a general trend in Mexico, where remittances constitute the second largest source of foreign revenue, surpassed only by the revenue generated from oil exports.

#### IV. FINAL REFLECTIONS

Contract farming offers important advantages to the firms, such as: control over the product (in terms of quantity and quality), reduced costs and risks, greater expansion and diversification of their operations, opportunity for receiving governmental assistance, enhanced geographical mobility, and access to both flexible and qualified labor (Singh 2002; Echánove 2006). This flexibility allows firms to avoid the payment of benefits such as health insurance and paid leave.

The results or effects of the contracts upon the producers depend on the power relationships existing between these and the firms, and vary according to agricultural and market structures, and to the country's socio-economic and political environment (Masakure and Henson 2005:1732). Other determinant elements are: the access the producers have to resources such as manpower, water, transport, and land; household characteristics; the competition existing between the firms; the official regulation over the relationships between the firms and the producers; the participation of private organizations or NGOs; the organization and strength of the producers; and the scale of their operations.

The producers seek, by means of contracts, to improve their incomes, to have access to a secure market, capital, technology and supplies, and to reduce the risks associated with price fluctuations. Masakure and Henson (2005:1726) remark that those agents also enter into contracts because they have no better income alternatives, as in the case of the pickling cucumber presented here. In this study, they evidenced the disadvantages that the contracts have generated for the producers, and the fact that they are similar to those reported in many other case studies.

Despite the foregoing, however, diverse case studies have demonstrated an improvement in the income of the contracted producers, and in the regional employment. The same has happened to pickling cucumber producers, who would be in worse condition if they had not been contracted by the firms. However, the majority of the producers remain in poverty; all of them having in common their reduced scale of operation, which make their transition to a higher economic level more difficult.

The type of producers contracted by the firms depend on several factors, such as the characteristics of the crop and its labor demands, the size of existing producers in the agribusinesses' sphere of influence, and the contract transaction costs. Firms carefully choose their producers, privileging those having access to capital, that is, those who offer better quality, possess infrastructure and, above all, are deemed to present lower transaction costs to the firms.

Nevertheless, contracting with small-scale producers also exists, as has been shown both in the case of the pickling cucumber and other vegetable crops in Mexico (see Echánove 2006), and those situated in different countries of Asia, Latin America and the Caribbean (Little and Watts 1994; Burch 1996). On occasion, the explanation given is that the firms do not have any other alternative but to contract small-scale producers, since they are located close to the firm. In the majority of cases, however, the reason is that the crops in question are very labor-intensive, family-produced crops. In the case of the pickling cucumber, the presence of small-scale producers is explained both by its being a labor-intensive crop, and by the fact that that size of producer predominates in Valle.

It cannot be denied that the cultivation of vegetable crops has generated employment in that municipality, however, not all the smallholding producers can grow cucumbers, owing to the fact that either their plots have no access to water, or the growers are unable to rent lands. On the other hand, the area devoted to pickling cucumber in Valle has diminished over recent production cycles, due to the reduced participation of Mexico in US imports of that crop; this is as a result of competition from India, where even lower labor and transport costs have attracted several transnational companies (Dean Foods, etc.). Furthermore, the United States continues to be an important producer of pickling cucumbers in its own right, and its foreign purchases represent only 6 per cent of its consumption, which itself has leveled off in recent years, justifying its designation as a 'mature' market.

Finally, it is necessary to point out that the cultivation of vegetable crops in Valle and, in general, in the Bajío region, has already drawn its limits. The uncontrolled proliferation of pests has been so extreme that, for some years now, periods of bans of the principal vegetable crop, broccoli, have been enforced. With respect to broccoli and pickling cucumber, the use of dangerous pesticides has daily detrimental effects on human health and contributes toward the rising contamination of existing soils and waters. Moreover, there has been an excessive extraction of underground water for irrigation purposes, with the consequent lowering of the aquifer levels (at the rate of three meters per year) and salinization of the soils. All these effects lead us to question the sustainability of the vegetable production in general and of the pickling cultivation in particular.

## NOTES

- <sup>1</sup> *Ejido* is a land tenure system that grants usufruct rights to agrarian reform communities and includes both individual and commonly held lands. *Ejidatarios* are the members of the *ejido*.

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